Summary

Subglottic stenosis (SGS) is a challenging complex clinical problem, that has a complex etiology .In the early to middle part of this century, SGS has been frequently sequelae of infection or trauma, but more recently, endotracheal intubation, while providing requisite respiratory support, has precipitated many cases of acquired subglottic stenosis .In addition some children are bom with a narrowed subglottic lumen (congenital SGS). Patients may rarely develop stenosis without prior airway manipulation (idiopathic SGS).

Because patients with subglottic and tracheal stenosis often have other obstructing airway lesions, a complete evaluation must include an assessment of the entire laryngotracheal airway.

The plain chest radiography (including expiratory phase and decubitus views) remains the initial imaging procedure in most patients; yet the central airways are among the most often overlooked areas on the plain chest radiograph. Once a central airway disorder is perceived on the plain chest radiography or suspected clinically there are a number of radiographic imaging procedures available to evaluate this region further . A commonly ignored method is **simple fluoroscopy** ,which allows dynamic assessment of changes in the central airways .Other methods include , **xeroradiography , tomography of the larynx ,contrast laryngography , computed tomography and magnetic resonance imaging (MRI) .**

Operative evaluation of chronic airway obstruction is the most definite component of the diagnostic work-up of this life-threatening problem. Endoscopic evaluation can provide the best assessment of an obstructing lesion and is often the setting for initial surgical intervention .

Pulmonary function tests may be helpful for judging the location and severity of the airway obstruction.

Recent trials have tried acoustic measurement of the cross-section area of the larynx to define the site and severity of the stenosis, however

The principles of restoring the laryngeal airway depend mainly on the integrity of the laryngeal framework. The cricoid cartilage is the only complete ring in the respiratory tract and is responsible for the patency of the subglottic region, as it is the narrowest part of the larynx and trachea.

The management of the subglottic atenosis involves two main choices:

- Endoscopic management.
- Open surgical management.

Perhaps the most common performed endoscopic procedure is laser ablation of the stenosis and intraluminal stenting. The stenotic lesions most amenable to this technique are early stage lesions with granulation tissue and mature lesions with short segments of intraluminal fibrosis but no involvement of the cartilaginous skeleton.

Stenosis that are longer than 1 cm, have glottic or extensive tracheal involvement, when endoscopic methods fail or the stenotic lesions are associated with cartilaginous destruction or loss of tracheal wall support, open surgical procedures are required. These procedures involve either resection of the stenotic segment with end to end anastomosis or air way expansion with bone, cartilage, or soft tissue flaps. These open procedures allow wide exposure of the pathology and exploration of potentially involved adjacent structures.

Tracheal resection with end to end anastomosis is the procedure of choice for mature isolated segmental tracheal stenosis or tracheomalacia. Although cases of combined subglottic and tracheal stenosis have been managed with resection and primary thyrotracheal anastomosis.

The various augmentation procedures are designed to expand the lumen and provide structural support and an epithelial linning , these procedures are often applied to more complicated cases that involves multiple sites of stenosis or injury, they include:

- Costal cartilage grafting.
- Hyoid bone interposition.
- Sternohyoid rotary door flap.
- Composite nasal-septal cartilage graft.
- Sternocleidomastoid myoperiosteal flap.